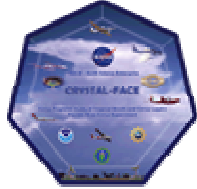


Analysis of the July 23 Mesoscale Convective System

Jeffrey B. Halverson, JCET UMBC

Matt Boehm, SSAI

David Starr, NASA GSFC

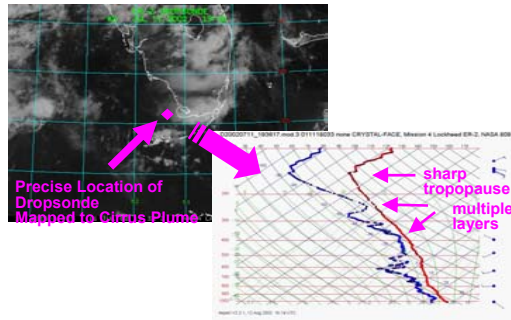


ER-2 Dropsonde and Mobile Soundings During CRYSTAL FACE

OBJECTIVES:

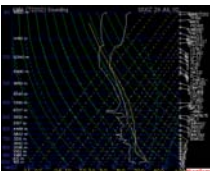
1. In situ profiling of temperature, winds, water vapor in convectively-generated cirrus, cirrostratus and sub-visible cirrus from FL650-700 to ocean surface ;
2. Obtain soundings near land-based convection to characterize the interior peninsula pre-storm and peri-storm environments;
3. Provide initialization data for CRMs and meso-scale models

Example of Dropsonde Profile: 11 July Anvils Generated by West Coast Sea Breeze Storms



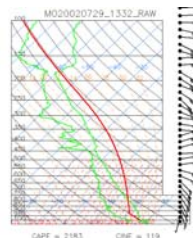
Example of Mobile Sounding Data: July 29

Inland Mobile Sondes Sample More Unstable Airmass Than Coastal Soundings... Critical for Model Initialization of Convection



July 29 MIA RAOB
Launched 11 Z
PBL suppressed:
CAPE = 651
CIN = 134

July 29 Mobile Sonde - Inland
Launched 1330 Z
After two hr of solar heating,
and away from marine influence,
CAPE = 2183 and CIN = 117

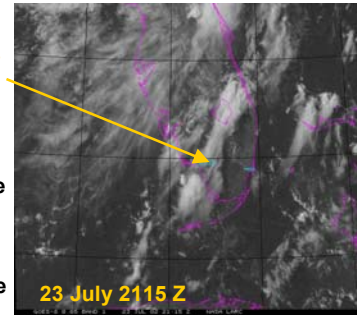


July 29 TBW RAOB
Launched 11 Z
CAPE = 643
CIN = 175

Elongated cirrus plumes generated by East Coast multicellular storm

Moistening of upper troposphere and cirrus plume generated by three generations of storms

Pre-existing middle level moisture and temperature discontinuity enhanced detrainment of cirrostratus at 450 mb; sublimation of ice later enhanced this discontinuity via cooling and moistening

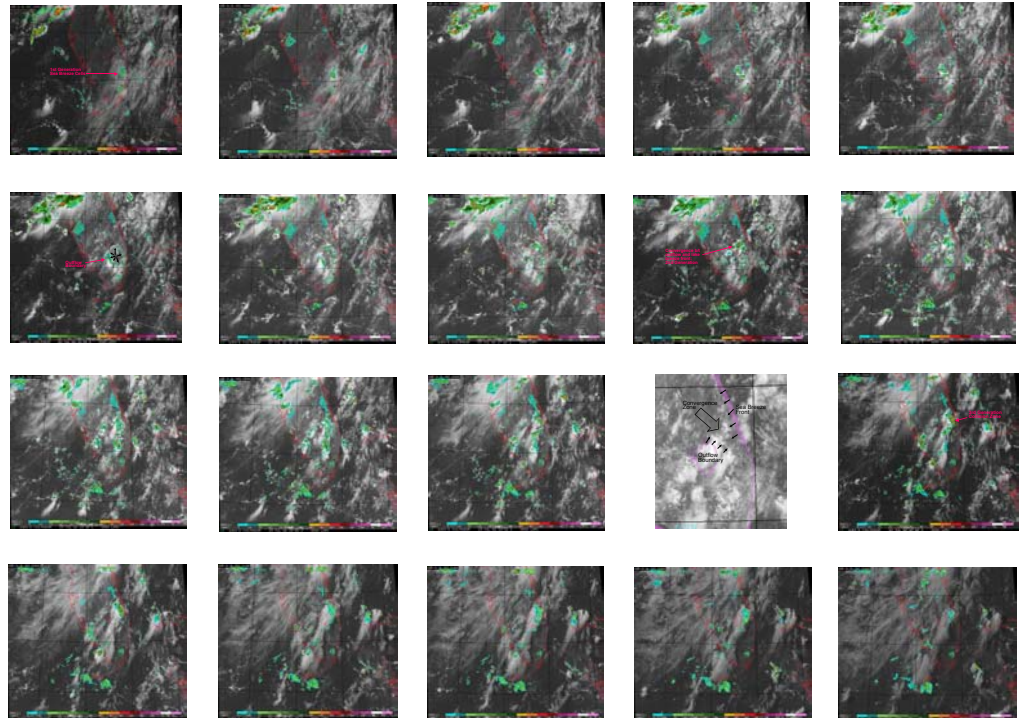


1st Generation - multicell over southern Florida

2nd Generation - outflow from this cell triggers multicell along Lake Okeechobee, cell propagates northward

3rd Generation - outflow from lake cell collides with East Coast sea breeze front

Radar and Satellite Evolution of the July 23 East Coast Multicell



Early AM Mobile Sonde Related to MCS Morphology

